

PATENT ABSTRACTS OF JAPAN

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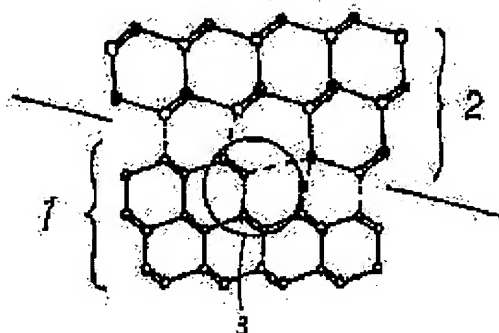
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(54) METHOD FOR GROWING CDTE ON SI SUBSTRATE BY MBE

(57)Abstract:

PURPOSE: To provide a method for growing CdTe epitaxial layer stably on an Si substrate by MBE.

CONSTITUTION: A Si (221) off substrate (3° off in the direction $[-1 -1 4]$) is employed for growing CdTe. In the substrate, lattice irregularity becomes 0 in the direction normal to step 3 because of the lattice relaxation. The substrate is cleaned at first by RCA cleaning before it is introduced to a growth system. The substrate is heated up to about 850°C in a preheat chamber where protective oxide is removed from the surface of the substrate before it is introduced into a growth chamber. Temperature of the substrate is set at a predetermined level in the growth chamber and a molecular beam of CdTe is projected to effect the growth. At first, CdTe is grown by 500\AA ; at 200°C of substrate temperature and then it is annealed at 400°C for 10min without irradiating the molecular beam before CdTe is grown again at 300°C of substrate temperature thus obtaining a CdTe (112) off epitaxial layer 2. Half width of 220sec is obtained in X-ray diffraction. It is a very good value for CdTe/Si.



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